EXAMINER'S AMENDMENT

1. The title has been amended to "Mutant Sodium Channel Nav1.7 Nucleic Acid Methods."

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Brian Giles on June 17, 2009.

Cancel claims 2-9, 11-18, and 31-88.

Amend claims below.

Claim 1 (amended) A method of characterizing a nucleic acid sequence that encodes a $Na_v1.7$ sodium channel alpha subunit, comprising the step of identifying mutations ~~at one or more sites~~ in regions of the nucleic acid sequence that encode an ~~intracellular N-terminal region, an extracellular loop in domain I, an~~ intracellular loop between domains I and II, wherein the mutation encodes amino acid residue which corresponds to amino acid residue 641 of human $Na_v1.7$ sodium channel alpha subunit, ~~an intracellular loop between domains II and III, an intramembrane region of domain II,~~

~~or any combination thereof,~~ such identified nucleotides indicating the character of the nucleic acid sequence.

Claim 10, line 1, replace "claim 8" with – claim 1 --.

Claim 27, (amended) A method for determining a $Na_v1.7$ haplotype in a human subject comprising identifying one or more nucleotides encoding amino acid residues ~~62, 149,~~ 641, ~~655, 739, 1123, or any combination thereof,~~ wherein the nucleotide or nucleotides indicated the haplotype.

28. (amended) A method for determining a subject's predisposition to a neurologic disorder associated with a sodium channel mutation comprising comparing the subject's $Na_v1.7$ haplotype with one or more reference haplotypes that correlate with the neurologic disorder, a similar haplotype in the subject's $Na_v1.7$ haplotype as compared to the reference haplotype or haplotypes indicating a predisposition to the neurologic disorder, wherein the reference haplotype comprises nucleotides that encode mutations which corresponds to amino acid residue 641 of human $Na_v1.7$ sodium channel alpha subunit.

REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance:

The closest prior art of record, Mandel et al.(US 6,110,672), does not anticipate or fairly suggest the claimed invention because the prior art do not teach the claimed invention of the specific amino acid sequence changes.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pak whose telephone number is 571-272-0879. The examiner can normally be reached on 8:00 - 2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Nickol can be reached on 571-272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Pak/
Primary Examiner, Art Unit 1646